

REMARKS

Reconsideration of the above-identified application as amended is respectfully requested. Each of independent claims 1, 2 and 3 has been amended as indicated above to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claim 1 stands rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, the Examiner states that “phosphate-type species” is indefinite as to what the metes and bounds of this language are. The Examiner also cites “the water-soluble phosphate-type species that are formed as products upon the catalyst composition” as lacking antecedent basis. In response, Claim 1 has been amended to recite “phosphate species” rather than “phosphate-type species”, as suggested by the Examiner. Further in response, Applicants have amended claim 1 to delete “the water-soluble phosphate-type species” and to substitute therefor “the phosphate species”, for which antecedent basis is clearly provided in line 3 of claim 1 as amended. Additionally, claim 1 has been amended to clarify that phosphate species are washed from the catalyst composition.

Applicants respectfully submit that one of ordinary skill in the relevant art would fully understand the metes and bounds of the phrase “phosphate species” as the term “phosphate” is well known in the chemical arts to refer to a defined class phosphorus and oxygen containing compounds. Claim 1 clearly sets the metes and bounds of the language by referring to washing those phosphate species that are water-soluble and formed as products upon the catalyst composition, that is products of the decomposition of the organophosphonate compound. Applicants respectfully submit that claim 1 as amended contains claim language that is definite and thus particularly points out and distinctly claims the subject matter which applicant regards as the invention and also includes proper antecedent basis for the term “phosphate species”. Accordingly, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. 112, second paragraph, be withdrawn.

Claims 2,3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lapidus, U.S. Pat. No. 6,300,268, or Obayashi, U.S. Pat. No. 6,025,292, or Japanese Published Pat. Application No. 10-202106, or Japanese Published Pat. Application No. 58-219942. The Examiner cites each of Lapidus (col. 2,3), Obayashi (its examples), JP '106 (its abstract) and JP '942 (its abstract) as teaching the regeneration of a spent catalyst by washing with water. The Examiner states that the taught spent catalysts would appear to be suitable for decomposing organophosphonate compounds because they are the same metal oxides or activated carbon as cited in Applicants' claims. Applicants respectfully traverse this rejection.

Claims 2 and 3 have each been amended to recite a specific catalyst composition containing a catalyst selected from the group consisting of manganese oxide, titanium dioxide, vanadium, vanadium oxide, and mixtures thereof, and a catalyst selected from the group consisting of activated carbon, diphosphorus pentoxide (P₂O₅) and mixtures thereof. This catalyst composition is that catalyst composition recited in the claimed method of decomposing organophosphate compounds of U.S. Patent No. 6,596,915, which issued July 22, 2003, on the parent application from which this Divisional application claims priority. Thus, as amended, each of claims 2 and 3 recite a particular method of regenerating a specific catalyst composition, which catalyst composition is not disclosed in the cited art.

Lapidus teaches a multi-step process for regenerating cobalt-containing catalysts, in particular cobalt supported on titania, deactivated by sulfur including the steps of first treating the spent catalyst with a stream of oxygen, air or oxygen enriched air to oxidize the sulfur, next washing the catalyst with a liquid, preferably water, and thereafter contacting the washed catalyst with hydrogen or other reducing agent (see col. 2, lines 5-22 and col. 3, lines 10-33). Applicants respectfully submit that Lapidus can not be read to teach regenerating a spent catalyst by simply washing with water, while ignoring the further steps taught by Lapidus of subjecting the spent catalyst to an oxidizing atmosphere prior to washing with water and then subjecting the spent catalyst

to a reducing atmosphere post washing with water. Applicants respectfully submit that Lapidus lacks any motivation that would lead one to omit the oxidization and reduction steps and try the step of washing as a method to regenerate the specific catalyst composition recited in claims 2 and 3.

Obayashi et al. teaches a method of regeneration of a denitration catalyst (consisting of titania, tungsten trioxide and vanadium pentoxide) by cleaning the spent catalyst with a solution having a hydrofluoric acid concentration of 0.3 to 3% by weight to remove silica compounds without damaging the structure of the catalyst (see col. 7, lines 33-47). In fact, Obayashi et al. teach away from washing the spent denitration catalyst with water, stating at col. 7, lines 36-38, that the effectiveness of the cleaning fluid "will be insufficient if the hydrofluoric acid concentration of the cleaning fluid is less than 0.3% by weight." Applicants respectfully submit that Obayashi et al. lacks any motivation that would lead one looking to omit the hydrofluoric acid component of the disclosed cleaning fluid and try the step of washing as a method to regenerate the specific catalyst composition recited in claims 2 and 3.

The abstract of JP'942 regenerating a deodorizing catalyst consisting of an oxide of a metal such as Mn, Co, V, Cr, Fe, Ni, Cu, Ag or Zn on activated carbon in a multi-step process consisting of first washing the spent catalyst with an aqueous ammonia solution having a pH of 10-11 to remove sulfuric acid or metal sulfate, then washing with water and baking the catalyst at a temperature of 200-300°C in an inert atmosphere. Applicants respectfully submit that the abstract of JP'942 can not be read to teach regenerating a spent catalyst by simply washing with water, while ignoring the further taught steps of subjecting the spent catalyst to treatment with aqueous ammonia prior to washing with water and then baking the spent catalyst. Applicants respectfully submit that JP'942 lacks motivation that would lead to omit the ammonia treatment and baking steps and try the step of washing the spent catalyst with water as a method to regenerate the specific catalyst composition recited in claims 2 and 3.

The abstract of JP'106 regenerating a hydrogenation catalyst consisting of palladium on activated carbon in a multi-step process consisting of first treating the spent catalyst with steam or hot water (40-150°C), then washing with water and cooling the catalyst to a temperature less than 40°C. Applicants respectfully submit that the abstract of JP'106 can not be read to teach regenerating a spent catalyst by simply washing with water, while ignoring the further taught steps of subjecting the spent catalyst to treatment with steam or hot water prior to washing with water and then cooling the spent catalyst. Applicants respectfully submit that JP'106 lacks motivation that would lead one to omit the steam/hot water treatment and cooling steps and try the step of washing the spent catalyst with water as a method to regenerate the specific catalyst composition recited in claims 2 and 3.

Accordingly, Applicants respectfully submit that each of claims 2 and 3, as amended, is patentable under 35 U.S.C. 103(a) over each of Lapidus, U.S. Pat. No. 6,300,268, or Obayashi, U.S. Pat. No. 6,025,292, or Japanese Published Pat. Application No. 10-202106, or Japanese Published Pat. Application No. 58-219942.

Applicants are also submitting herewith an Information Disclosure Statement to bring to the attention of the Examiner additional documents for consideration. These documents include references that have been cited in either of commonly assigned U.S. Patent Applications serial nos. 09/665,806 and 10/271,043, related to the subject patent application, and also include additional references cited by the European Patent Office, acting as the International Searching Authority, in International Patent Application No. PCT/US00/25815, which claims priority in part from U.S. Provisional Application Serial No. 60/155,430 in common with the parent application of the subject patent application. This Information Disclosure Statement is accompanied by authorization to charge the fee set forth in 37 C.F.R. § 1.17(p) for submission of an Information Disclosure Statement under 37 C.F.R. § 1.97(c).

In view of the amendments made and the arguments presented herein, Applicants believe the pending application is in condition for allowance. Therefore, Applicants respectfully request that the Examiner reconsider the rejection of claim 1

under 35 U.S.C 112, second paragraph, and the rejection of claims 2,3 under 35 U.S.C. 103(a), and upon reconsideration withdraw these rejections and pass claims 1-3 to allowance.

If the Examiner wishes to expedite disposition of the above-captioned patent application, he is invited to contact Applicant's representative at the telephone number below.

Applicant believes a fee is due with this response. Please charge Deposit Account No. 03-0835, under Order No. 210_1091RCE from which the undersigned is authorized to draw.

Dated: March 3, 2008

Respectfully submitted,

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